

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of

Use of Spectrum Bands Above 24 GHz for Mobile Radio Services

GN Docket No. 14-177

Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands

IB Docket No. 15-256

Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band

RM-11664

Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 to Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services

WT Docket No. 10-112

Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations

IB Docket No. 97-95

**PARTIAL OPPOSITION OF IRIDIUM COMMUNICATIONS, INC. TO
NEXTLINK PETITION FOR RECONSIDERATION**

INTRODUCTION

In its July 14, 2016 *Report and Order*,¹ the Commission opened more than 10 GHz of spectrum for Upper Microwave Flexible Use Services (“UMFUS”), created a 14 GHz unlicensed band, and, in an accompanying *Further Notice*, committed to examining an additional 12.5 GHz of spectrum for use by terrestrial wireless services. To identify spectrum suitable for new

¹ *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, FCC 15-138, 31 FCC Rcd. 8014 (2016) (“*Report and Order*” or “*Further Notice*”).

services, the Commission carefully selected candidate bands based on the contiguous bandwidth requirements of next generation wireless services, the benefits of international harmonization, and the need to accommodate incumbent services, especially when provided by co-primary users. Acting on sound principles of spectrum policymaking, the Commission declined to authorize UMFUS operations in the 150 MHz of spectrum located in the 29.1-29.25 GHz band, also known as the Local Multipoint Distribution Service (“LMDS”) A2 band. The Commission did so twice: first in the *NPRM* that presaged the *Report and Order*,² and again in the *Further Notice* that accompanied it.³

Nextlink Wireless, LLC (“Nextlink”), an LMDS licensee, petitions for reconsideration or clarification of the *Report and Order*.⁴ In its petition, Nextlink argues primarily for greater flexibility in meeting LMDS performance requirements.⁵ As an alternative form of relief, however, Nextlink asks the Commission to authorize UMFUS operations in the A2 band, as well as the LMDS A3 band and B block.⁶

Iridium Communications, Inc. (“Iridium”) does not oppose the bulk of Nextlink’s application. Iridium has no position on the showings an LMDS licensee must make to satisfy the Commission’s performance requirements, nor on the activities that should be permitted in LMDS A3 band or B block spectrum. Iridium strongly opposes, however, Nextlink’s thinly supported proposal to authorize UMFUS in the A2 band, which Iridium uses on a co-primary basis.

² *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, FCC 15-138, 30 FCC Rcd. 11,878, ¶ 70 (2015) (“*NPRM*”).

³ *Further Notice* ¶ 370.

⁴ Petition for Reconsideration or, in the Alternative, Clarification of Nextlink Wireless, LLC, GN Docket No. 14-177, et al. (filed Dec. 14, 2016) (“*Petition*”).

⁵ *Id.* at 2-8, 13.

⁶ *Id.* at 11-13.

As explained below, the Commission should deny Nextlink’s petition insofar as it seeks the authorization of UMFUS in the A2 band. First, the Commission’s decision not to propose UMFUS operations in the A2 band was unquestionably correct—and nothing in Nextlink’s pleading justifies an eleventh-hour change in course. Second, the Commission has not adequately noticed rules that would authorize UMFUS in the A2 band. To the contrary, the Commission explicitly stated that its final rules would do no such thing.

I. The Commission Correctly Declined to Propose UMFUS Operations in the 29.1-29.25 GHz Band

Iridium uses the 29.1-29.25 GHz band on a co-primary basis for feeder link and telemetry, track and control operations to deliver mission-critical mobile satellite services on ships, planes, and in remote earth locations.⁷ Backed by a \$3 billion investment, Iridium’s next-generation satellite constellation, Iridium NEXT, will also rely on the 29.1-29.25 GHz band,⁸ and will enhance Iridium’s ability to meet growing demand for secure, reliable, and truly global satellite services.

The architecture of Iridium’s low-earth, non-geostationary orbit satellite network poses unique challenges to sharing the 29.1-29.25 GHz band with ubiquitously deployed terrestrial services.⁹ These challenges are compounded by the exceptional costs of harmful interference to

⁷ See 47 C.F.R. 25.202. See also Reply Comments of Iridium Communications, Inc., GN Docket No. 14-177 (filed Oct. 31, 2016) (“Iridium FNPRM Reply Comments”); Comments of Iridium Satellite, LLC, GN Docket No. 14-177 (filed Jan. 15, 2015) (“Iridium NOI Comments”); Comments of Iridium Satellite, LLC, GN Docket No. 14-177 (filed Jan. 27, 2016) (“Iridium NPRM Comments”).

⁸ See *Iridium Constellation LLC Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation*, Order and Authorization, DA 16-875, 31 FCC Rcd. 8675 (2016).

⁹ See, e.g., Letter from Dave Horne, Intel Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177 (filed Aug. 10, 2015) (noting the “particularly challenging interference scenarios” in the 29.1-29.25 GHz band); Iridium NOI Comments at 2-6; Iridium NPRM Comments at 2-6; Letter from Scott B. Harris, Counsel, Iridium, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177 (filed May 18, 2016); Letter from Scott B. Harris, Counsel, Iridium, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177 (filed July 8, 2016).

Iridium’s users. Indeed, Iridium supports the core operations of the U.S. military and intelligence agencies, and serves as the last (and often only) line of communications for many commercial users.¹⁰ As a result, successful coordination between Iridium and UMFUS licensees in the 29.1-29.25 GHz band would prove extraordinarily difficult—and perhaps impossible.

Even if the Commission managed to develop a workable spectrum-sharing regime in the A2 band, the benefit to 5G consumers would be minimal to nonexistent. The LMDS A2 band contains 150 MHz of spectrum, and cannot be combined into a larger contiguous UMFUS band because the adjacent bands are not candidates for UMFUS operations. Network operators, however, will require much more contiguous bandwidth to deliver the performance to which 5G technologies aspire—and which justifies their very existence. Indeed, at every turn in this proceeding, a diverse set of 5G proponents—including equipment manufacturers, chipset makers, and network operators—have pushed the Commission to look beyond 150 MHz as it opens high-band spectrum to terrestrial 5G services.

For example, Verizon reported that network operators must be allowed to “assemble substantial amounts of contiguous mmW spectrum” in order to deliver next-generation wireless services, and advocated against spectrum screens or caps on that basis.¹¹ For the same reason, Verizon also urged the Commission to create 3 GHz of contiguous UMFUS spectrum by combining the 37 and 39 GHz bands.¹² Likewise, TIA urged the Commission to use block sizes of at least 200 MHz “throughout the UMFUS bands”—while proposing blocks larger than 500

¹⁰ See generally Iridium NOI Comments.

¹¹ Comments of Verizon at 6, GN Docket No. 14-177 (filed Jan. 28, 2016) (“Verizon Comments”); *see also* Letter from Charla M. Rath, Vice President, Wireless Policy Development, Verizon, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 14-177 (filed July 6, 2016) (reiterating its opposition to spectrum screens or caps because of contiguous bandwidth requirements).

¹² Verizon Comments at 13-15.

MHz in the 47 GHz band, and criticizing the Commission’s proposal for federal priority in the lower 37 GHz band on grounds that it would leave commercial licensees with “only 400 MHz.”¹³

Along the same lines, AT&T noted that “large contiguous channel bandwidths will be essential to 5G’s advancement,”¹⁴ and a virtual prerequisite for meeting expected 5G “data speeds,” ensuring strong “system performance,” and providing the “higher throughput” required to deliver services to a large number of simultaneous users.¹⁵ AT&T also cogently explained that the inefficiencies of spectrum aggregation would make assembling smaller blocks of high-band spectrum impractical, noting that such efforts “would come at a cost in terms of power consumption, equipment complexity, and system performance.”¹⁶

Similarly, Huawei identified the availability of “significant bandwidths of contiguous spectrum” as “the principal reason for expanding 5G systems to include the mmW bands,” and described a “global consensus” that 5G services will need “a minimum of 500 MHz to 1 GHz bandwidth.”¹⁷ Qualcomm shared these views, stating that the benefit of the “millimeter wave bands” is their ability to “offer large contiguous blocks of spectrum to help meet today’s surging mobile broadband data demands, particularly in major metropolitan areas and event venues where large numbers of users are often densely concentrated.”¹⁸

Recognizing that Iridium operates in the A2 band with “co-primary status,” and that the A2 band “offer[s] considerably less than [the] 500 megahertz of contiguous spectrum [that]

¹³ Comments of the Telecommunications Industry Association at 5, 10-12, GN Docket No. 14-177 (filed Sept. 30, 2016) (“TIA Comments”).

¹⁴ Comments of AT&T at 10, GN Docket No. 14-177 (filed Jan. 28, 2016).

¹⁵ *See, e.g.*, Comments of AT&T at 7, GN Docket No. 14-177 (filed Sept. 30, 2016) (“AT&T Comments”).

¹⁶ AT&T Comments at 10.

¹⁷ Comments of Huawei Technologies, Inc. at 5-6, GN Docket No. 14-177 (filed Jan. 28, 2016).

¹⁸ Comments of Qualcomm Incorporated at I, GN Docket No. 14-177 (filed Jan. 27, 2016).

commenters have suggested is necessary for mobile operations,” the Commission declined to identify the 29.1-29.25 GHz band as a candidate for UMFUS operations in the *NPRM*.¹⁹ In the *Further Notice*, the Commission again declined to examine the 29.1-29.25 GHz band, seeking instead to focus the proceeding on bands identified as candidates for IMT-2020.²⁰

Nothing in Nextlink’s petition warrants reconsideration of the Commission’s conclusion. As explained below, Nextlink’s claim that the A2 band is “ideally suited to 5G” fails on all counts, and Nextlink’s demand that the Commission protect the “investment-backed expectations” of A2 band incumbents is plainly self-defeating.²¹

A. The 29.1-29.25 GHz band is not “ideally suited to 5G”

Despite overwhelming evidence to the contrary, Nextlink insists that the 29.1-29.25 GHz band is “ideally suited to 5G.”²² In support of its claim, Nextlink baldly asserts that the A2 band is “under international consideration for mobile service,” that allowing UMFUS operations in the A2 band would “facilitate existing incumbent license assignments and uses,” and that the A2 band contains enough bandwidth to “amply support 5G services.”²³ None of this is true.

First, as the Commission recognized in the *Further Notice*, the World Radiocommunication Conference decided *not* to identify the A2 band as even a *candidate* band

¹⁹ *NPRM* ¶ 70.

²⁰ *Further Notice* ¶ 373.

²¹ Petition at 12.

²² *Id.*

²³ *Id.* at 12-13.

for IMT-2020.²⁴ Thus, as Iridium explained previously, “the prospect of [internationally] harmonized use of the A2 band for 5G operations in the next decade has evaporated.”²⁵

Second, Nextlink does not appear to recognize that Iridium is a co-primary incumbent in the A2 band. As a result, Nextlink makes no effort to demonstrate how sharing between UMFUS and Iridium’s incumbent services would be possible, let alone propose rules that would establish workable principles of coordination and ensure a suitable interference environment for Iridium’s operations.

Finally, to estimate the bandwidth requirements of terrestrial 5G networks, Nextlink relies solely on a crude calculation purporting to show that high data rates could be “achieved in 200 MHz bandwidth.”²⁶ Of course, the A2 band has less spectrum available than the 200 MHz assumed in the calculation. More importantly, the calculation makes no effort to address critical 5G performance characteristics other than peak data rates, nor to account for the additional spectrum that network operators will need to ensure service quality under real-world service conditions. In short, Nextlink fails to rebut the overwhelming consensus, described above,²⁷ that network operators will need considerably more than 150 MHz of contiguous spectrum to meet the expectations of 5G consumers.

²⁴ See World Radiocommunication Conference, Final Acts, Resolution 238 (WRC-15) (2015) *available at* https://www.itu.int/dms_pub/itu-r/oth/0c/0a/ROC0A00000C0014PDFE.pdf.

²⁵ Iridium FNPRM Reply Comments at 5-7; *see also* Reply Comments of Iridium Communications, Inc. at 6-7, GN Docket No. 14-177 (filed Feb. 26, 2016).

²⁶ Reed Engineering, *Maximizing the Utility of the Upper Microwave Flexible Use Service Bands via Licensee Flexibility and Sound Spectrum Usage Policies* at 7-8 (Jan. 28, 2016), attached to Comments of XO Communications, LLC, GN Docket No. 14-177 (filed Jan. 28, 2016).

²⁷ *See supra nn.* 10-19 & accompanying text.

B. The Commission’s decision not to authorize UMFUS in the A2 band has not “upset[] incumbents’ investment-backed expectations.”

Nextlink also claims that “adopting mobile service rules for some, but not all, of the LMDS band upsets incumbents’ investment-backed expectations,” and suggests that the “Commission could avoid this problem altogether by adopting flexible use rules for the A2 . . . band[]” and all other LMDS spectrum.²⁸ This claim is appalling.

Nextlink’s logic is exactly backwards. Because LMDS is a fixed wireless service, incumbent Nextlink could not reasonably have expected to provide mobile services in return for its investment in LMDS licenses – and the market surely did not value those licenses as if they allowed mobile service. On the other hand, Iridium has invested *billions* in reliance on its continued access to critical feeder link spectrum, consistent with the Commission’s long-standing designation of mobile satellite services as co-primary in the A2 band. The bottom line is that by declining to authorize UMFUS in the A2 band, the Commission did not upset Nextlink’s investment-backed expectations—it merely preserved Iridium’s.

II. Rules Authorizing UMFUS in the 29.1-29.25 GHz Band Have Not Been Properly Noticed

Under the Administrative Procedures Act (“APA”), a “[g]eneral notice of proposed rule making shall be published in the Federal Register,” and must discuss “either the terms or substance of the proposed rule or a description of the subjects and issues involved.”²⁹ After publication of the required notice, the Commission must “give interested persons an opportunity

²⁸ Petition at 12.

²⁹ 5 U.S.C. § 553(b).

to participate in the rule making through submission of written data, views, or arguments.”³⁰ The opportunity for comment must be “meaningful.”³¹

To comply with the APA’s notice and comment requirements, the information provided in the notice must be “sufficient to advise interested parties that comments directed to the controverted aspect of the rule should have been made,” and allow “a reasonable commenter” to anticipate that the rule at issue “would be promulgated.”³² In addition, the notice must provide interested parties with “enough information to comment and for the agency to consider and respond to the comments.”³³

Here, the *NPRM* did not merely provide *inadequate* notice that the Commission would authorize UMFUS operations in the 29.1-29.25 GHz band—it provided *clear* notice that the Commission’s final rules would do no such thing. Indeed, the Commission expressly declined to “propose authorizing mobile operation” in the A2 band, based primarily on the lack of contiguous spectrum and Iridium’s co-primary status.³⁴ Importantly, the Commission did not even seek comment on its evaluation of the suitability of the A2 band, and thereby treated its determination as a firm conclusion rather than a tentative finding.³⁵ Unsurprisingly, the Commission did not identify any means of protecting Iridium’s incumbent operations, propose potential spectrum sharing regimes, nor suggest technical rules to govern the new operating

³⁰ *Id.* § 553(c).

³¹ *Rural Cellular Ass’n v. FCC*, 588 F.3d 1095, 1101 (D.C. Cir. 2009).

³² *First Am. Disc. Corp. v. Commodity Futures Trading Comm’n*, 222 F.3d 1008, 1015 (D.C. Cir. 2000) (internal quotation marks omitted).

³³ *Prometheus Radio Project v. FCC*, 652 F.3d 431, 450 (3d Cir. 2011).

³⁴ *NPRM* ¶ 70.

³⁵ *Compare id.* (not seeking comment on the suitability of the A2 band, A3 band, or B block) *with id.* ¶¶ 74, 80, 87, 91 (seeking comment on the suitability of the 31.3-33 GHz band, 42-42.5 GHz band, 71-76 GHz band, 81-86 GHz band, and spectrum above 86 GHz).

environment that would result from the entry of terrestrial mobile services in the A2 band, as it correctly shifted its focus toward superior candidates for terrestrial 5G operations.

Thus, the Commission cannot simply reverse course on reconsideration as Nextlink wishes. Given the firmness of the Commission's decision, interested parties have had no reason to anticipate that rules authorizing UMFUS in the A2 band would be promulgated. Moreover, because the *NPRM* does not even begin to address the wide range of issues the Commission would have to resolve before UMFUS licensees are allowed to operate in the A2 band, interested parties have not had a meaningful opportunity to comment on Nextlink's proposal.

CONCLUSION

The Commission correctly determined that the 29.1-29.25 GHz band is poorly suited to UMFUS operations, and has not adequately noticed rules authorizing UMFUS in the 29.1-29.25 GHz band in any event. Accordingly, it should deny Nextlink's petition.

Respectfully submitted,



Maureen C. McLaughlin
Vice President Public Policy
IRIDIUM COMMUNICATIONS, INC.
1750 Tysons Boulevard, Suite 1400
McLean, VA 22102
(703) 287-7518

Scott Blake Harris
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, Eighth Floor
Washington, DC 20036
(202) 730-1300
Counsel to Iridium Communications, Inc.

January 31, 2017

CERTIFICATE OF SERVICE

I, Elizabeth Marley, do hereby certify that a copy of the foregoing “Partial Opposition of Iridium Communications, Inc. to Nextlink Petition for Reconsideration” was served by United States First Class Mail this 31st day of January 2017 on the following:

Michele C. Farquhar
Tom Peters
Arpan A. Sura
C. Sean Spivey
HOGAN LOVELLS US LLP
555 Thirteenth Street, N.W.
Washington, DC 20004

/s/ Elizabeth Marley